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U. S. DEPARTMENT OF AGRICULTURE

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
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Volume 10 February 19, 1960 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG counts ranged up to 1,000 per linear foot in oats in several Louisiana parishes. (p. 95).

PUMPKIN CATERPILLAR collected in Highlands County, Florida. (p. 96).

INSECT DETECTION: First authenticated report of face fly from Iowa. (p. 97).

CORRECTIONS. (p. 98).

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INSECTS not known to occur in the United States. (p. 111).

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Reports in this issue are for the week ending February 12, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1960

The Weather Bureau's 30-day outlook for the period mid-February to mid-March calls for temperatures to average below seasonal normals over the eastern half of the Nation except for near to above normal over the Great Lakes Region and New England. For the western half of the country, temperatures are predicted to average above normal in northern portions and near normal in the south except for above normal along the Pacific coast. Precipitation is expected to exceed normal over the eastern third of the Nation and the Southern Plains. Greater than normal amounts are also indicated for the Pacific Northwest. Subnormal precipitation is expected over the far Southwest, the Western Great Lakes, and Northern Plains. In areas not specified near normal amounts are in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook," published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 15

Mean temperatures this week were generally above normal in the northwestern and northeastern quarters of the Nation, and below normal in the Great Plains, Mississippi Valley, and the Gulf States. Two vigorous winter storms over the eastern two-thirds of the Nation highlighted the weather scene this week. The first storm, moving from the central Rocky Mountains across the Great Plains to the Great Lakes and New England, left record low pressure readings over a wide area from Texas into southern Kansas and Missouri on the 9th. Ponca City, Oklahoma, recorded 28.70 inches for one of the lowest readings. A major duststorm swept across eastern New Mexico, western Texas, and western Oklahoma on wind gusts up to 80 m.p.h. or higher. Temperatures on Tuesday in most of central and southern Texas reached the highest known levels for so early in the year when Rio Grande City reported 102°, Laredo 98°, and Austin 87°, and 80° readings extended northward into Oklahoma and Arkansas. Moderate to heavy snow occurred north of the storm center from Kansas and Nebraska northeastward, and scattered, locally severe thunderstorms and general rains were recorded south and east of the storm center from Texas and Oklahoma to the central Mississippi and Ohio Valleys. Snowfalls of 1 to 4 inches were general in Kansas, 2 to 6 inches in South Dakota, 8 to 15 inches in Michigan, and 18 inches in southeastern Wisconsin. Severe glazing occurred in central Lower Michigan. High winds resulted in widespread local damage and much drifting, which blocked highways over most of the snow area. Cold air moved into the northern Great Plains and Great Lakes behind this storm with below zero readings general over the weekend. General heavy rains and some record high temperatures in New York and New England accompanied the passage of the storm center north of these areas.

The second severe storm center developed in the northwestern Gulf of Mexico on Friday and moved rapidly northeastward along the Atlantic coast into New England by late Saturday. Before the development of the surface low pressure system, light to moderate snow began in the Big Bend region of Texas on Thursday. The snow area moved eastward to south Texas, the coastal plains, and the Central Gulf States on Friday as the storm became organized in the Gulf of Mexico. Snow depths in Texas were generally 3 to 7 inches from the Big Bend to the coastal plains, with record falls of up to 12 inches measured in an area east and southeast of San Antonio. Heavy snow, with some sleet and rain, extended from south Texas, southwestern Louisiana, and central Mississippi northward through Alabama, Georgia, and the Carolinas into the Ohio Valley, and the Middle Atlantic and Northeastern States as the storm moved through these areas. Total snowfalls of more than 1 foot were recorded from areas of Mississippi, Tennessee, North Carolina, Virginia, West Virginia, Pennsylvania, and New York, and totals of more than 6 inches from most

(Continued, p. 99).

CEREAL AND FORAGE INSECTS

CORN LEAF APHID (*Rhopalosiphum maidis*) - OKLAHOMA - Averaged 30 per linear foot in a wheat field surveyed in Jefferson County. (Vinson). None noted in 2 wheat fields checked in Tillman and Jackson Counties. (Hatfield, Presgrove).

GREENBUG (*Toxoptera graminum*) - LOUISIANA - Counts ranged from 0 to more than 1,000 per linear foot of oats in fields in Claiborne, Ouachita, Red River and Natchitoches Parishes. Predators not present in any of the fields and number of parasitized aphids was negligible. (Spink). OKLAHOMA - Counts averaged 1.5 per linear foot in a Jefferson County wheat field and 5 per linear foot in a Bryan County wheat field. (Vinson). None were noted in a wheat field checked in Tillman County (Hatfield) nor in a wheat field checked in Jackson County (Presgrove). TEXAS - Infestations found only in isolated areas, with very little damage noted thus far this season. (Hawkins). KANSAS - Counts were less than one per square foot in a wheat field in Marion County. (Peters).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Infestations have been found only in isolated areas. Very little damage has been noted. (Hawkins). KANSAS - Averaged less than one per square foot in a Marion County wheat field. (Peters).

BEAN APHID (*Aphis fabae*) - CALIFORNIA - Light populations, probably this species, occurring in the Gerber area, Tehama County. (Cal. Coop. Rpt.).

PEA APHID (*Macrosiphum pisi*) - OKLAHOMA - Counts averaged 3 per linear foot in an alfalfa field checked in Bryan County. (Vinson). CALIFORNIA - Very light infestation showing on alfalfa in the El Centro area of Imperial County. (G. D. Peterson). KANSAS - Counts averaged less than one per square foot in an alfalfa field in Marion County. (Peters).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Averaged 3 per linear foot in an alfalfa field checked in Bryan County (Vinson) and 2 per linear foot in a Jackson County alfalfa field checked (Presgrove). CALIFORNIA - Light populations occurring in the Gerber area of Tehama County. (Cal. Coop. Rpt.). NEW MEXICO - Infestations appear to be light in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

AN APHID - ARIZONA - An undetermined species heavily infesting wild mustard growing on the desert in north Pinal County. (Ariz. Coop. Sur.).

A GROUND PEARL - GEORGIA - Infestations of an undetermined species heavy on centipede grass in Dooly County. (Johnson, Feb. 2).

A BILLBUG (*Calendra callosa*) - GEORGIA - Hibernating forms in broomsedge averaged 1 per 3 clumps of grass. (Johnson, Feb. 4).

FRUIT INSECTS

A PEACH TREE BORER - ARIZONA - Heavily infesting peach trees in Cochise County; 80 percent of trees in 4-year-old and older orchards infested with as many as 23 larvae, taken from the base of one tree and soil around it. Apricot trees in same area also infested, but less heavily than peach trees. (Ariz. Coop. Sur.).

Peach Tree Insects in Louisiana - *Sanninoidea exitiosa*, *Synanthedon pictipes* and *Aspidiotus perniciosus* are very abundant in some peach orchards in Lincoln Parish. (Spink).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Heavy infestations on turnips in Wheeler County. (Jackson).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Colquitt County. (Johnson, Feb. 3).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky-board collections during period February 1-8 were 7 at Mesa, 3 at Kyrene, 1 at Waddell, 14 at Glendale and 6 at Deer Valley. (Ariz. Coop. Sur.). CALIFORNIA - Medium on lettuce and heavy on sugar beets in El Centro area, Imperial County. (G. D. Peterson).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - A considerable amount of control has been applied in the lower Rio Grande Valley, particularly in the Starr County area. (Deer).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Collected in Steiner trap in orange tree at Childs, Highlands County, January 22. Det. by C. P. Kimball. (Fla. Coop. Sur.).

THRIPS - TEXAS - Light infestations of Thrips tabaci noted on onions in the La Sara area of the lower Rio Grande Valley. (Deer). NEW MEXICO - Seedling onions heavily infested with Frankliniella spp. throughout most of Mesilla Valley. (N. M. Coop. Rpt.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations were present on tobacco in plant beds in Tift, Berrien, Cook, Colquitt, Lowndes, Tattnall and Bulloch Counties the week ending February 5 and in Worth, Tift, Colquitt and Mitchell Counties the week ending February 12. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Infestations on tobacco in the plant bed were light in Tift, Berrien, Cook, Colquitt, Lowndes, Tattnall and Bulloch Counties the week ending February 5 and light in Worth, Tift, Colquitt and Mitchell Counties the week ending February 12. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE TIP MOTH - ARKANSAS - No emergence has been detected; however, as weather becomes seasonally warmer, activity will begin. Overwintering forms are plentiful in plantings scattered over the State. Prospects are that there will be moderate to heavy infestations in many local areas. (Ark. For. Pest Rpt., Feb.).

A DEODAR WEEVIL (Pissodes sp.) - LOUISIANA - Probably P. nemorensis, heavily infesting loblolly pines in Lincoln, Webster, Claiborne and Bienville Parishes; 3-5 percent of stands 10-30 feet high affected. Thin stands of timber are more seriously affected. (Spink).

IPS BEETLES (Ips spp.) - ARKANSAS - Some activity has been observed. Generally, spots of infestation, even though still local, are larger than at this time in 1959. (Ark. For. Pest Rpt., Feb.).

TURPENTINE BEETLES - ARKANSAS - Some activity occurring. Where heavy cutting has been done, buildup may occur to kill seed trees which are left. (Ark. For. Pest Rpt., Feb.).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Medium larval infestation in birch tree trunks in Turlock, Stanislaus County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Male moths numerous around lights, February 7 and 8. (Peters).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Larvae active in mines on American holly at College Park, February 10. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy infestations on calendula in Anaheim, Orange County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Infesting pachysandra at Pikesville, Baltimore County, February 10. (U. Md., Ent. Dept.).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Heavy on some pyracantha checked in the Lawton area of Comanche County. (Hatfield). NORTH CAROLINA - Infesting weeping cherry in Iredell County. Det. H. Morrison. (Plant Dis. Clin.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Medium to heavy infestations on treefern and Chamaecyparis sp. (false-cypress) in Pescadero, San Mateo County, and Oakland, Alameda County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Specimens reported in CEIR 10(7):81 as infesting beef animals at Flintstone, Allegany County, determined as H. lineatum by C. Sabrosky. (U. Md., Ent. Dept.). OKLAHOMA - Counts of H. lineatum averaged 7 per animal on 13 mature cows checked in the Wewoka area, Seminole County. (Teakell). NORTH CAROLINA - None were found in 56 head of beef animals and 93 head of dairy cows examined in Wake County. Grubs averaged 15-22 per head in 60 untreated beef cattle imported from mountain area to experimental farm in Rowan County. (Jones). UTAH - Beginning to appear in backs of many Weber County cattle and becoming numerous in backs of untreated cattle in parts of Sanpete and Emery Counties. (Knowlton). KANSAS - Grubs averaged 1.13 per head in 158 head of 2-year-old steers examined in Ellis County on January 29, and 2.3 per head in 22 yearling calves. (Knapp). NEW MEXICO - Have become a problem in several herds in southern counties. (N. M. Coop. Rpt.).

FACE FLY (Musca autumnalis) - IOWA - Collected January 15 in a home at Columbus Junction, Louisa County. Det. J. Laffoon. This is the first authenticated report of the occurrence of this species in the State. (Harris).

BLACK BLOW FLY (Phormia regina) - OKLAHOMA - Of 35 cattle dehorned in Payne County 5 showed larval infestations in the wounds. (Besch).

CATTLE LICE - UTAH - Troublesome in some Cache and Toole County herds; are serious in some herds at Plain City, Weber County, and in parts of eastern Box Elder County; and are common on unsprayed herds in Sanpete and Wayne Counties. (Knowlton).

DOG FOLLICLE MITE (Demodex canis) - NORTH CAROLINA - Three cases reported to the State veterinarian during January. (Zweigart).

SPINOSE EAR TICK (Otobius megnini) - NEW MEXICO - Very numerous in ears of cattle on a ranch near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

TICKS - OKLAHOMA - Counts of unspecified species averaged 12 per animal on 40 head of beef cows checked in Le Flore County. (Goin).

STORED-PRODUCT INSECTS

Stored-grain Insects in Oklahoma - Counts in 1,200 bushels of stored oats in a wooden granary checked on a farm in Marshall County averaged as follows: CADELLE (Tenebroides mauritanicus), 4; RICE WEEVIL (Sitophilus oryza), 6; and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), 2. (Vinson). There have been several reports of INDIAN-MEAL MOTH (Plodia interpunctella) infesting stored-products in homes in the Stillwater area. (Howell).

Stored-grain Insects in New Mexico - Larvae of INDIAN-MEAL MOTH (Plodia interpunctella) were very abundant on sacked grain and in litter in several feed stores and elevators checked. RICE WEEVIL (Sitophilus oryza) was common in feed stores in southern counties and larvae of MEALWORMS (Tenebrio spp.) were found to be very abundant on old sacks and stored grain in several locations in Hidalgo and Dona Ana Counties. Infestations of SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) were light to moderately heavy on stored grain in Hidalgo and Grant Counties. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES (Hippodamia spp.) - NEW MEXICO - H. convergens and H. parenthesis abundant and active on warm days in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

HONEY BEE (Apis mellifera) - TEXAS - Honey produced during 1959 is estimated at 13,988,000 pounds by the Texas Crop and Livestock Reporting Service, which is 7 percent above the 13,050,000 pounds produced in 1958. An estimated 269,000 colonies averaged 52 pounds per colony during 1959, compared with 261,000 colonies averaging 50 pounds per colony during 1958. (Gaines).

HYMENOPTEROUS PARASITES - OKLAHOMA - Counts averaged 3 per linear foot in a wheat field checked in Jefferson County. (Vinson).

MISCELLANEOUS INSECTS

A STONEFLY (Allocapnia sp.) - PENNSYLVANIA - Swarming on milkhouse and getting inside of building, contaminating milk cans and other equipment, in Warren County. (Adams, Feb. 1). Swarming on house, trees and fences in Washington County. (Udine, Feb. 4).

CORRECTIONS

CEIR 10(2):15 - LINDEN LOOPER - PENNSYLVANIA - Should read: "...and seen flying in woods in Blain, Perry County..."

CEIR 10(7):90 - On sixth line from the top, Dacus doraslis Hend. should read Dacus dorsalis Hend.

CEIR 10(7):91 - Under Distribution, mention of P. atriplicella should read G. atriplicella.

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Feltia subterr.	Prodenia ornithog.	Agrotis ipsilon	Peridroma margaritosa
ARIZONA					
Mesa 2/1-7			51		3
FLORIDA					
Quincy 2/8		3			
Gainesville 2/10		2			
Homestead 2/5		6			
LOUISIANA					
Baton Rouge 2/5-11	2		5		
SOUTH CAROLINA					
Charleston 2/8-14	1	2		2	

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(Weather continued from p. 94)

other States in the snow belt. In southern and central New England snow changed to sleet and then rain, causing slush and rapid melting. Generally heavy rains occurred in the Southeast, south of the snow area. Strong winds, particularly in the Northeast, caused much severe drifting, and gales produced a damaging storm surge up to 6 feet above normal tides along the southern New England coast.

In the Western States unseasonably mild temperatures were the rule and precipitation was heavy in coastal sections with 3 inches or more general from southern Oregon northward. Most areas of the Central and Northern Plateau States received substantial amounts of precipitation, and light showers were reported from most southern Plateau areas. The snowpack in the mountains of the Western States, the principal source of summer irrigation water, has been increased in recent weeks, but is generally still much below normal for this time of year. (Summary supplied by U. S. Weather Bureau.).

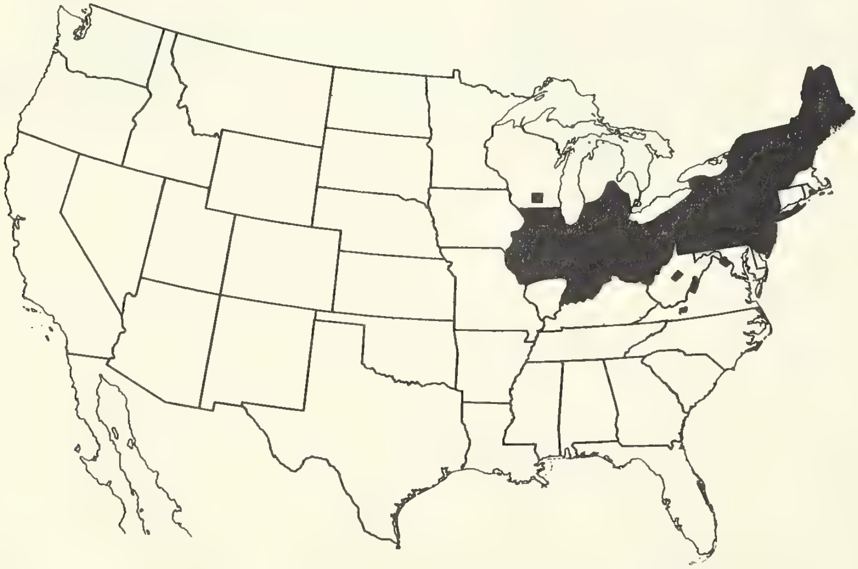
SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES [1]

1959

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) became abundant and seriously annoying to cattle in several states during 1959. Specimens were collected in 13 states for the first time during the year. The states, in order, according to when they were reported, were Virginia, Ohio, Indiana, Illinois, Pennsylvania, Michigan, Massachusetts, New Hampshire, Delaware, New Jersey, West Virginia, Vermont and Wisconsin.

The pest became quite heavy in western Pennsylvania, although it was present in all parts of the State, and caused much concern to cattle and home producers. In New Jersey, face fly appeared statewide as an annoying pest of dairy cattle, particularly in clustering about the eyes of animals and producing irritation. First collections of face fly were made in August in New Castle County, Delaware, and in Chittenden County, Vermont. Infestations were reported moderate throughout Maine during August, and were heavy on the faces and eyes of cattle during late summer in Bath, Highland and Montgomery Counties, Virginia. Face fly was first reported in Indiana at Randolph on June 3. It spread rapidly and generally over the State and caused extreme annoyance to cattle in the northern half, where it also entered houses. The first record in Illinois was on June 3 at St. Joseph, Champaign County. Since that date, the species was collected in 53 counties in the northern two-thirds of the State. One hundred or more flies per animal were observed in some herds in the eastern portion of the State north of Champaign and also in Whiteside County in the northeast. Much annoyance was caused to cattle, particularly around faces and heads. The introduction, wide distribution and abundance of face fly in Ohio was one of the outstanding features of the season in that State. Adults of this species accumulated on the faces of cattle at Wooster in 1958, but the species was not identified at that time. Early in 1959, specimens were identified in Ohio as M. autumnalis. The flies



General Distribution of Musca autumnalis were found to be abundant over Ohio throughout the summer and were extremely annoying to cattle in pasture. Populations of 50 to 100 per cow face were not uncommon. The first identification of this species in Wisconsin was made from collections taken in Dane County during September. Collections in other counties in Wisconsin were negative. (See CEIR 9(31):719 for additional material on face fly).

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[1] Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

HOUSE FLY (Musca domestica) populations became numerous in several states during 1959, particularly during the late summer and early fall. Those states reporting high populations during that portion of the year were North Dakota, Nevada, Arizona, Utah, Missouri, Delaware and Indiana. In Utah, annoyance and numbers of house fly were excessive over the State, being extremely numerous in cities, towns, on farms, and were very common in food-handling establishments. Populations in Arizona became a problem to poultrymen in the eastern area late in the summer. They were also heavy in many areas of the State during November and a problem around homes. Southern Nevada dairy areas had heavy populations during October and populations were more abundant than usual in many parts of Illinois, moderate to heavy in Georgia, numerous in Texas, heavy around homes and barns in Maryland and very abundant and annoying in Delaware. The pest continued as the primary one of dairy barns and homes in Indiana. Farms in Indiana that did not practice rigid sanitary procedures had enormous populations late in the season. In Missouri, populations were low during the early and midseason but became more numerous in September and October.

FLIES (undetermined species) were more of a problem than they had been for the past two years in barns and on cattle in Wisconsin. Fly control was reported unsatisfactory on some farms as early as June 12. In Minnesota, flies appeared to be heavier than usual generally and persisted somewhat later than usual.

HORN FLY (Siphona irritans) populations were abundant and annoying on cattle in Utah, New Mexico, South Dakota, southwestern North Dakota, north central, northeastern and western Nebraska and in Louisiana. Numbers in Indiana were moderate on untreated cattle, ranging up to 2,000 on bulls early in June and were serious again on dairy cattle in most sections of Maryland. Virginia reported statewide and important populations, while in Georgia infestations ranged from light to moderate, being mostly moderate. Numbers in Arkansas and Nevada remained about the same as in previous years, but they were less numerous than in 1958 in Kansas. Counts in Oklahoma were higher than in 1958 throughout the State.

STABLE FLY (Stomoxys calcitrans) populations were more abundant than usual in many parts of Illinois and increased during late August around feed lots in eastern Nebraska. Adults were common and annoying in Delaware in late July and were high in numbers in many localities in North Dakota during late summer. In Utah, annoyance to livestock was common and about average, as were population levels in Nevada. Populations in Kansas were not as plentiful as in 1958.

The SCREW-WORM (Callitroga hominivorax) outbreak that occurred in Louisiana was the most serious problem on animals during the year in that State. The first authenticated report of infestation, an interception, was of an infested hog in a shipment from an out-of-state source at the Delta Station in Madison Parish in July. The first positive infestation occurring in Louisiana in 1959 was an infested calf on a farm in Madison Parish. By November, 138 reports from 6 parishes were received. The Louisiana parishes infested were East Carroll, Franklin, Madison, Richland, Tensas and West Carroll. No screw-worm infestations in domestic animals were reported during 1959 in Georgia and no cases were identified in Kansas. Infestations in Nebraska were few, only three being reported in the late summer from Dawes County. Activity in Arizona was reported throughout the spring and summer in the eastern and central range areas and infestations in Texas continued heavy throughout the State. Cases in Nevada were below the 1958 level. One case of nasal myiasis in man was reported in Cushing County, Oklahoma, early in October. Over 100 larvae were removed.

Adults of BLACK BLOW FLY (Phormia regina) were abundant around livestock corrals near Ft. Sumner, De Baca County, New Mexico, during early summer.

A SARCHOPHAGID (Wohlfahrtia opaca) caused an extimated loss of one million dollars on mink and other affected animals in Utah. Some mink growers in Utah consider this the worst year they have ever experienced from injury by this pest. Larvae sometimes attack livestock. Larvae of this pest were recovered from tunnels in the flesh of kittens at Gooding, Idaho, and infestations of another FLESH FLY (W. vigil) resulted in numerous deaths among mink "kits" on several fur farms in Wisconsin.

HORSE BOT FLY (Gasterophilus intestinalis) eggs were extremely numerous on forelegs and necks of horses in Union, Colfax and Harding Counties, New Mexico, and this and other species of bot flies were common and annoying to horses in various localities in Utah.

CATTLE GRUBS (Hypoderma spp.) continued to cause losses throughout Texas and were somewhat above normal in beef cattle in Maryland. Populations in Nevada remained about the same as in previous years. In North Carolina, a survey made by county agents in January, February and early March revealed the following: In 28 counties, over 3,678 animals were examined and the average number of larvae per animal ranged from 0 to 8.5. In two mountain counties, the average was 2.3 per animal of 32 examined in Avery County and 8.5 per animal of 11 examined in Jackson County. COMMON CATTLE GRUB (Hypoderma lineatum) was present in all parts of Virginia, but was not as prevalent in the northern and southwestern counties (mountainous areas) as it was in the rest of the State. NORTHERN CATTLE GRUB (Hypoderma bovis) was prevalent in northern and southwestern Virginia, but in reduced numbers in other parts of the State. Adults of both species, H. lineatum and H. bovis, caused damage to cattle in Utah. New systemics were tested for grub control, with 4,400 cattle being treated in one area of Sanpete County during October. These two species also remained the major animal pests in Wyoming during 1959 and infestations in Washington averaged 30 per head in herds in Asotin County and 7 to 8 per head in the western area. In South Dakota, H. bovis and and H. lineatum continued serious pests in the State. From a herd of 87 untreated calves checked in March, the average number of grubs per head was 26.2, while a herd of 109 cows averaged 0.9 grubs per head.

Common cattle grub populations were lighter than 1958 in Oklahoma and light to moderate in Georgia. The spring surveys in Arizona showed variable infestations occurring in cattle in all areas of the State. Counts in Oklahoma averaged 12 to 18 grubs per animal in yearling steers and 7 per animal on mature cows in Harper and Woodward Counties during January. Adults annoyed cattle in north central Oklahoma during March and fall grub counts were lighter across the State than in 1958. Counts in Arkansas averaged 3.88 grubs per head in 17 counties compared with 2.24 grubs per head in 1958, but all of the same areas were not involved. The average in New Mexico was 15 to 30 grubs per head in cattle during January and February in Union, Harding and San Miguel Counties. The adults began annoying cattle the first week of April in De Baca, Sierra and Torrance Counties, New Mexico, and the first larval specimens were found in the back of a steer during the third week of August. One larva already had made a hole in the skin. Larvae were collected in De Baca, Grant, Hidalgo, Union, Harding, San Miguel and Taos Counties, New Mexico, during 1959. The first infestations appeared a month later than 1958 in Kansas.

TABANIDS were very troublesome to farm workers in the tidewater areas of Maryland during June and July and were reported as pests in Arkansas and Louisiana, where populations were abundant.

HORSE FLIES (Tabanus spp.) were of considerable concern in the east central and southeastern areas of Oklahoma during August and September and were common and annoying to livestock in Utah. Counts in Oklahoma were generally higher than in 1958. Horse flies were below the 1957-58 levels in Nevada except in Clark County where T. productus and T. punctifer were present in above normal numbers and were extremely annoying to humans. T. atratus was common to numerous in New Castle and Kent Counties, Delaware, during July and T. atratus and T. sulcifrons were extremely abundant in northeastern Indiana during the last two weeks in July and first two weeks in August; counts averaged 25 "strikes" per minute. Tabanus spp. were more abundant than usual in many parts of Illinois and populations in Nebraska were near normal but small areas in the east and southeast experienced increased numbers. Occasional herds of cattle had 8 to 10 Tabanus spp. per head in Nebraska.

DEER FLIES (Chrysops spp.) were common and of average annoyance to livestock in Utah and population levels appeared higher than those of previous years in Idaho, especially in the eastern area. In North Carolina, biting by Chrysops spp. was severe in the coastal counties late in June and early July and they were very common and annoying in Delaware the first part of June.

A TABANID (Hybomitra lasiophthalma) and Chrysops nigra caused considerable annoyance to workers out-of-doors in Wayne County, Ohio, late in May and early June.

MOSQUITOES were serious pests to man and animals in several areas of the Nation, especially along the eastern seaboard from Rhode Island through North Carolina and in inland areas where rainfall was above normal. In the northern areas of the country, Maine reported mosquitoes appearing about May 25, at Penobscot, but dry weather caused many small pools to dry up before emergence could take place. Various species were increasingly numerous and annoying in Rhode Island at Narragansett and South Kingstown in mid-August.

In mid-September in New Jersey, the State experienced for the first time a sharp outbreak of human involvement with eastern equine encephalitis. Although the disease has been recognized as a veterinary problem for decades, human involvement in 1959 was serious. Attention is being focused on several species known to harbor the virus in New Jersey. Culiseta melanura is suspected as a vector of the virus among birds.

Continued expansion of resorts and urban development in New Jersey have increased problems with Culex pipiens and C. salinarius.

In the tidal areas of New Jersey, SALT-MARSH MOSQUITO (Aedes sollicitans) was very abundant in August and caused more annoyance than usual. In the drier upland areas of northern New Jersey, mosquitoes did not become a problem and were less of a nuisance than normal, but as a result of heavy midsummer rains in the south, numerous woodland pool species appeared in the interior of coastal counties and caused unusual difficulties.

Populations of Aedes spp. were some of the heaviest on record on the Eastern Shore of Maryland during the summer and salt-marsh mosquito was a major pest in Kent County, Delaware, this past season. One Dover trap recorded a seasonal high of 3,684 females on July 22. Some nuisance was caused by salt-marsh mosquito in Sussex County, Delaware. The floodwater species of mosquitoes in Delaware were not abundant in New Castle County until late in the fall and overall mosquito abundance was significantly less in Sussex County than in other areas of the State; however, another mosquito, Culex salinarius, was very abundant in Wilmington during June and July and in Delaware City in July and August. The highest numbers of C. salinarius were trapped on July 15 when 1,248 females were caught.

Mosquitoes were important and general in Virginia and salt-marsh mosquito biting was recorded as 150 per minute in mid-July in the coastal areas of North Carolina, an increase of 146 per minute from the 4 per minute recorded in April in the same area.

Floodwater mosquitoes were exceptionally abundant and annoying in northern Ohio from mid-May through June. In one instance in Wayne County, mosquito annoyance caused an approximate 10 percent milk reduction in dairy cows. Of 292 adults collected while attempting to bite during the peak of annoyance, 126 were *Aedes sticticus*, 86 *A. trivittatus*, 58 *A. vexans* and the rest were other species of *Aedes*.

Mosquitoes were rather scarce in most areas of Illinois, probably due to the dry weather. Where rainfall was fairly heavy in the northern area, populations were abundant. In Wisconsin, mosquitoes were a serious nuisance. In the Madison area, *Aedes vexans*, *A. dorsalis*, *Mansonia perturbans* and *Culex pipiens* caused most of the annoyance. As early as June 12 mosquitoes were reported keeping cattle from grazing at night in some areas of Wisconsin. Sporadic heavy rains during the summer in Minnesota resulted in abundant populations of mosquitoes in the Minneapolis-St. Paul area. Control was difficult mainly because of the inability to treat soon enough the tremendous number of breeding sites that resulted from floodwater accumulations. The mosquito population over Minnesota appeared about normal, however.

In Missouri, *Culex*, *Aedes* and *Psorophora* became annoying and a problem during the latter half of May. These problem areas continued during the summer in all areas where rainfall was frequent and above normal. Control was applied. Mosquitoes were a nuisance to man and animals in Arkansas. Populations, primarily *Psorophora confinnis*, were extremely heavy in the spring and early summer during frequent rains and when the rice fields were drained and reflooded.

Several species of mosquitoes were extremely numerous over most of Texas, due partly to the above-normal rainfall, and increased mosquito outbreaks in Nebraska were repeated for the third successive year, predominant species being *Culex tarsalis* and *Aedes vexans* in that State. *A. increpitus* was found in Sioux County, a new record for Nebraska.

Several unspecified mosquitoes were troublesome in Utah during the spring and in several other areas of the State throughout the season, but less general than normal. The pests were at the lowest level in the past three years in Nevada. Numbers remained slightly to moderately below normal in irrigated areas with sufficient water. Mosquitoes were serious pests of livestock and residents in all areas of Wyoming and *Aedes* spp. were highly bothersome during late May and early June in wetter, northern areas of Idaho. They were also very annoying during the evenings in parts of Jefferson, Bear Lake and Bingham Counties, Idaho, late in July. In Washington, *Culex tarsalis* was not as common as in previous seasons. No confirmed cases of human encephalitis were reported in Washington during 1959 and very few, if any, horse encephalitis cases.

BLACK FLIES were common in Idaho and in apparently normal numbers throughout the more mountainous portions of the State. They appeared about May 25 in Maine. In Maryland, *Simulium jenningsi*, annoyed humans in the Great Falls area during May and *Prosimulium hirtipes* complex was abundant in northern New Castle County, Delaware, in April. *S. decorum* was reported for the first time in Florida at Gretna, Gadsden County. It was collected December 10, 1958, and reported as biting humans. Severe swelling, inflammation and edema of the immediate area of the bite were noted.

Blue tongue virus disease of sheep was diagnosed in the vicinity of Moses Lake, Washington; the first record in the State. A SAND FLY (*Culicoides variipennis*), the vector of the disease, was by far the most prevalent of the four species of *Culicoides* recorded from the Columbia Basin.

SHEEP KED (*Melophagus ovinus*) was abundant and injurious generally in Utah, especially during the winter and on young lambs in the spring, and was light to heavy on sheep in De Baca, San Miguel, Socorro, Taos and Lincoln Counties, New Mexico, during the spring and early summer. Populations in Nevada were about the same as in previous years.

A SNIPE FLY (Symphoromyia hirta) annoyed man and cattle in several canyons of Utah, especially in the northern portion of the State.

An EYE GNAT (Hippelates collusor) was again present in large numbers in southeastern Clark County, Nevada, throughout the spring, summer and fall and was heavy in Yuma County, Arizona, during early May and present throughout the remainder of the year in that State. The heaviest concentrations in Arizona were in and around citrus groves. Another eye gnat (H. pusio) was as numerous as usual in the Coastal Plain of North Carolina.

PUSS CATERPILLAR (Megalopyge opercularis) and Norape cretata caused discomfort and hospitalization of a boy in North Carolina.

HORNETS and YELLOW JACKETS were extremely abundant and annoying in several localities throughout northern Idaho late in the summer and were very numerous in the Twin Falls and Moscow areas late in the fall. They were also abundant and annoying in the lake resort areas of eastern Washington and caused many complaints in Rhode Island. In Indiana, Vespula maculata and V. maculifrons increased their nesting activities in residential areas and numerous inquiries were received concerning them. One death at Martinsville, Indiana, was attributed to multiple stings.

A LEAFHOPPER (Deltocephalus flavicosta) was reported biting people in Wilson County, North Carolina, and ASSASSIN BUGS were reported extremely numerous and biting humans in mines in Nevada. MASKED HUNTER (Reduvius personatus) was unusually abundant in Moscow, Idaho, and assassin bugs and Triatoma sp. caused concern in houses in southern and western areas of Texas. Seven BED BUG (Cimex lectularius) infestations were reported in Athens, Georgia, and surrounding area from July to October (5 being in new homes) and a few infestations were reported in Utah and Delaware.

A CHIMNEY SWIFT BUG (Cimexopsis nyctalis) was recorded from Rush County, Indiana, during the summer. This was the first record of this species in the State, although it is very likely that it has been present for some time.

FLEAS were troublesome on cats, dogs and humans in most sections of Maryland and continued to be pests in Texas and North Dakota. HUMAN FLEA (Pulex irritans) was heavy in a farmyard in Spink County, South Dakota. Ctenocephalides spp. became particularly troublesome in Rhode Island in mid-August, were numerous in late summer in New Jersey and heavy in July in the Lincoln area of Nebraska around homes. CAT FLEA (Ctenocephalides felis) was a pest of minor importance in Ohio and was a pest in Indiana and Pennsylvania. DOG FLEA (C. canis) was also recorded as a pest in Pennsylvania.

CATTLE LICE severely infested many herds of cattle in Utah and caused the usual extensive damage throughout the State. Ranchers in New Mexico reported light to severe infestations on cattle and infestations remained about the same in Nevada. CATTLE TAIL LOUSE (Haematopinus quadripertusus) was observed on a herd of cattle in East Baton Rouge Parish, Louisiana, during September and SHORT-NOSED CATTLE LOUSE (H. eurysternus) was observed at scattered localities in Kansas. CATTLE BITING LOUSE (Bovicola bovis) continued a problem on some cattle herds in Wyoming but excellent control was obtained with systemic insecticides. HOG LOUSE (H.suis) and SHAFT LOUSE (Menopon gallinae) infestations were scattered throughout Kansas.

BLACK WIDOW SPIDER (Latrodectus mactans) was frequently found in homes and farm buildings in Utah, especially in the fall. Four persons were reportedly bitten in the Ogden area during a three-week period in October; the first was hospitalized for four days. Much concern developed throughout Utah following wide publicity about the first person that was bitten. Populations in Nevada were about normal and an infestation was found in a home in Walworth County, South Dakota. A BROWN SPIDER (Loxosceles reclusa) was of special concern to householders over most of Kansas, especially in the eastern half of the State.

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) populations in Idaho during April, May and June were much above those recorded in the past few years in rangelands of the southwestern area. Extremely heavy infestations were noted in bands of sheep south of Marsing during April and up to 200 ticks per head were recorded on sheep in the Homedale area. This species was also heavy on sheep in parts of Elmore County, Idaho, during April. In northern Idaho, they were reported abundant on cattle near Nez Perce, and in one herd of 40 animals four head were paralyzed by ticks. In Washington, Rocky Mountain wood tick was much more abundant than usual in the southeastern area late in the spring, and was numerous during the spring on cattle and horses on rangelands in Utah, also attacking persons in that State.

Populations of AMERICAN DOG TICK (Dermacentor variabilis) were heavier than in the past three years in Oklahoma, severe in the eastern edge of South Dakota, severe at several places in Grand Forks and Ramsey Counties, North Dakota, numerous during early summer in Indiana, about normal in Maryland, abundant throughout Delaware by mid-May and abundant in Rhode Island. This species first appeared in April in Rhode Island and Delaware.

BROWN DOG TICK (Rhipicephalus sanguineus) was heavy in homes in Arizona throughout the year, heavy on dogs in south central Texas, numerous during early summer in Indiana and numerous in homes in Maryland. In addition, this species was reported for the first time in Arkansas in Washington and Pulaski Counties.

LONE STAR TICK (Amblyomma americanum) was heavier than during the past three years in Oklahoma and EAR TICK (Otobius megnini) caused local damage in several counties in Utah.

FOWL TICK (Argas persicus) caused abnormal molting of chickens at a poultry farm near Deming, New Mexico, and was abundant in a chicken house in Baltimore, Maryland, during October.

The presence of a SCAB MITE (Psoroptes ovis)* in Gove, Clark and Seward Counties, Kansas, resulted in a State quarantine being established in these three counties as in Meade and Finney Counties on January 31, 1959. Positive cases were not identified from all counties, however. The quarantine has been removed from all but Gove County and will probably be lifted from this county in the near future. Sheep scab mites were prevalent and common in sheep wherever they were raised in Virginia. Many flocks have to be treated every year in this State.

TROPICAL RAT MITE (Ornithonyssus bacoti) was found in some local rural areas of Tillman County, Oklahoma, during February. The mite caused a dermatitis to some humans. Reports of NORTHERN FOWL MITE (Ornithonyssus sylviarum) were received from scattered localities throughout Kansas and a HARVEST MITE from stored oats was reported attacking people in Pike County, Georgia.

An extremely large number of cases of DOG FOLLICE MITE (Demodex canis) were reported by the North Carolina State Veterinarian during July.

CHICKEN MITE (Dermanyssus gallinae) was a pest of minor importance in Ohio and an unusual invasion into a third floor apartment in Providence, Rhode Island, was reported late in June, being associated with pigeons.

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*Sweatman, G. K., 1958. Canad. Journ. Zool. 36(6):905-929.

HOUSEHOLD INSECTS

A number of pests were troublesome to homeowners during 1959. The pests most often mentioned were ants, cockroaches, termites, carpet beetles, clover mite, boxelder bug and earwigs. A number of other pests were also reported, but to a lesser extent.

The most commonly reported pests of residences in Ohio during 1959 were various species of ANTS. The majority of ants submitted for identification in that State were BLACK CARPENTER ANT (Camponotus pennsylvanicus) and,less frequently, PAVEMENT ANT (Tetramorium caespitum). Lasius umbratus and Crematogaster cerasi were each confirmed from one locality in Ohio. In Virginia, ants were a major household problem and pavement ant was abundant in homes in New Jersey. Black carpenter ant continued to be serious in Rhode Island, with complaints of swarming generally during June and July, and pavement ant caused many complaints in northern Rhode Island during late June. In Idaho, winged adults of Camponotus spp. became common in the Moscow area during early May, but population levels were considerably below those of 1958. Large numbers of adults migrated into homes in the Weiser area of Idaho early in September.

Four species of COCKROACHES were major household pests during 1959 in Virginia. BROWN-BANDED ROACH (Supella supellectilium) increased its distribution and abundance in Washington since it was first recorded in that State at Seattle in 1943 and at scattered localities throughout the State by 1954. In 1959, it was especially noted in the Puget Sound region. This species was also a major pest of homes in Oregon and became more widespread during the year. Infestations were moderate in York and Cumberland Counties, Maine, and several homes in northern New Castle County, Delaware, were reported infested. This cockroach was also a pest in Ohio and Maryland.

GERMAN COCKROACH (Blattella germanica) was recorded as a household pest in Maryland, New Jersey, Ohio, Indiana and Washington. However, resistance to chlorinated hydrocarbons was encountered at Bremerton, Washington, and in New Jersey and Indiana. In the latter two States, this species is reported becoming more important because of the resistance problem. ORIENTAL COCKROACH (Blatta orientalis) was reported troublesome in Delaware and Ohio.

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) flights were heavy during the spring in New Jersey and were noted as early as March in Rhode Island. Some large swarms were noted in mid-June in Delaware and unseasonal swarming during mid-August was also reported in Rhode Island. This termite caused considerable concern in Maryland and is a very serious problem in Rhode Island. New infestations were not unusually abundant in Delaware, however, and populations were not considered as numerous as in 1957 and 1958 in Ohio. Inquiries concerning the species were numerous in Indiana, most of them concerning remedial measures, but there seems to be a slight increase in the interest of the general public concerning preconstruction treatments in Indiana.

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) was recorded as a major pest in Oregon, and was reported infesting homes in southwesern and south central Idaho and at Bremerton, Washington. An undetermined SUBTERRANEAN TERMITE again damaged many homes and other buildings in various parts of Utah. Damage by TERMITES is becoming more extensive each year in Utah. A DAMPWOOD TERMITE (Zootermopsis angusticollis) was a major pest of homes in Oregon during 1959.

CARPET BEETLES were quite abundant during 1959 in Pennsylvania, more troublesome than usual in Ohio, serious in homes in Maryland, household pests in Virginia and reported many times in Indiana. The species most often reported in Pennsylvania, Ohio and Indiana was BLACK CARPET BEETLE (Attagenus piceus). In New Jersey, CARPET BEETLE (Anthrenus scrophulariae) and black carpet beetle were abundant, while in Oregon VARIED CARPET BEETLE (Anthrenus verbasci) was the dominant carpet beetle around homes. FURNITURE CARPET BEETLE (Anthrenus flavipes) was also common in several homes in New Castle County, Delaware, during the first of March.

EUROPEAN EARWIG (*Forficula auricularia*) adults became active during mid-April in Twin Falls and Moscow, Idaho, and populations were larger than they had been the last several years in the Parma area, with severe damage occurring in home gardens in that area. In Utah, the usual widespread annoyance about homes and in home gardens was reported, and complaints were about average in Nevada. This species has spread several hundred yards on each side of the original site found infested in Cimmaron Canyon, Colfax County, New Mexico, in the fall of 1958. European earwig was of negligible importance in Rhode Island, becoming evident in early June. Reports of EARWIGS invading homes in southern Louisiana were very numerous during January and February and again in the fall. Specimens were identified as *Labidura riparia*. Those earwigs infesting homes in Richmond, Putnam, Wilcox and Decatur Counties, Georgia, were identified as *Forficula* sp.

BOXELDER BUG (*Leptocoris trivittatus*) was a nuisance around homes at Albuquerque, New Mexico, during April and May and was very abundant during March and April in Delaware and Maryland. This pest was also a nuisance during October in Ohio and late in the fall in Maryland, and was reported as a major household pest in Virginia during the year.

CLOVER MITE (*Bryobia praetiosa*) was unusually heavy in homes in Rhode Island early in May and moderately troublesome in November. Invasions were also numerous in homes in New Jersey, Delaware and Virginia. Clover mite caused less annoyance in Ohio during 1959 than in 1957 and 1958. Complaints were about average in Nevada. Several reports were received during April in Idaho, of its being more abundant than the last few years in southwestern and south central counties.

CRICKETS were the earliest fall invaders of many homes in Rhode Island. Heavy populations entered basements and houses during the first week of September in Barrington and Narragansett Counties. In Oklahoma, invasions by *Acheta* sp. in stores were reported in several towns in the central area during September. A small brown cricket, *Nemobius* sp., was very numerous late in July and throughout August in Indiana, and caused many complaints. Motels were especially troubled by the nocturnal invasions of this cricket.

OLD HOUSE BORER (*Hylotrupes bajulus*) infestations were numerous in Maryland and the species was the most important powder-post beetle in Virginia. In Florida, larvae of this species were found feeding in the coniferous plywood bottom of a cedar jewelry box at Gainesville. The box was at least 6 years old and eggs had apparently been laid in the plywood before construction. A FALSE POWDER-POST BEETLE (*Hadrobregmus gibbicollis*) caused considerable damage to old buildings in U. S. Naval installations in Washington at Clallum Bay, Tatoosh Island, Neah Bay and Lapush, Clallum County; Ilwaco, Pacific County; Kingston, Kitsap County; and Oak Harbor, Island County.

Invasions of MILLIPEDES caused complaints in Louisiana and Ohio. FALSE CHINCH BUGS (*Nysius* spp.) were a nuisance in houses in many areas of New Mexico and were especially abundant in the Klamath Falls and Medford areas of Oregon. Larvae of a PYRALID (*Aglossa caprealis*) were reported in Jacksonville and Pensacola, Florida, homes. They were found in carpets and migrating up pine-panelled walls to pupate in cracks. A severe infestation of a FUNGUS BEETLE (*Typhaea stercorea*) was found in Turner, Maine, during August. Heavy populations were finding access into a home attached to a barn. ELM LEAF BEETLE (*Galerucella xanthomelaena*) was a major household pest in Virginia and was quite troublesome in Indiana.

Other insects reported as a nuisance to homeowners during 1959 were as follows: SILVERFISH (*Lepisma saccharina*) in all sections of Maryland; a JAPANESE WEEVIL (*Calomycterus setarius*) in many homes in Dane and Sauk Counties, Wisconsin; FIREBRAT (*Thermobia domestica*) in Twin Falls area of Idaho during April; CLUSTER FLY (*Pollenia rudis*) in Utah during the fall; SOLPUGIDS in Nevada; a GRASS BUG (*Arhyssus barberi*), a BOSTRICHID (*Stephanopachys substriatus*), WEEVILS (*Brachyrhinus ovatus*, *B. sulcatus* and *Trachyphloeus bifoveolatus*) and WHITE-MARKED SPIDER BEETLE (*Ptinus fur*)as major pests of homes in Oregon; and *T. bifoveolatus* invaded homes at localities in King and Kitsap Counties,Washington.

MISCELLANEOUS INSECTS

The JAPANESE BEETLE (Popillia japonica) trapping program was expanded during 1959 in Minnesota, with the emphasis once again being placed on transportation centers. During 1959, 565 traps were placed throughout Minnesota, an increase of 303 over 1958. The Twin City and Duluth areas were more intensively trapped than in past years. No beetles were found in Minnesota. Adult Japanese beetles were first noted on July 17 in Portland, Maine. A check of traps for this pest at various air fields in the east central and central areas of Oklahoma was negative.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) has been found in ten states since the pest was first reported in the United States in 1930 at Mobile, Alabama. States in which infestations have been found are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas. Since the cooperative program was started in 1957, more than one million six hundred thousand acres have been treated in nine states. All infestations in Tennessee were eradicated prior to the current program. As of November 30, some treatment work was underway in 83 infested counties and all known infestations had been treated in 75 counties. By the end of the year, all treatments had been completed in the States of North and South Carolina.

DANCE FLIES and MIDGES caused a problem during the summer in Rhode Island that cost a textile processing plant at least ten thousand dollars in damaged products and control measures. The case involved insects being crushed on cloth that was being rolled and causing stains, necessitating reprocessing. MAYFLIES appeared in such tremendous numbers in the Bedford area of Indiana that they caused several highway accidents.

At Lafayette, Indiana, a XIPHYDRIID (Xiphydria maculata) was especially numerous and oviposition was heavy in storm-damaged limbs of silver maple and hackberry, while HACKBERRY ENGRAVER (Scolytus muticus) emerged in numbers from storm-damaged hackberry. PIGEON TREMEX (Tremex columba) was more numerous than in past years in Indiana, especially at La Porte, where it was observed on dead and dying sugar maple and American elm. Dead FLIES of various species and families were quite numerous in Indiana, being killed by the fungus Entomophthora muscae.

In Maryland, THREE-LINED POTATO BEETLE (Lema trilineata) was destructive in all stages to jimsonweed in the central and southern areas during July, and a PSOCID (Ectopsocopsis pumilis) was found on used poultry crates at Landover and new wood milk boxes at Gaithersburg.

SPRINGTAILS appeared on the outside of buildings in New Castle County, Delaware, in unusually high numbers the first of July, and BANDED WOOLLYBEAR (Isia isabella) was very common during early September in that State.

A CARPENTER BEE (Xylocopa sp.) caused moderate damage and produced an unsightly condition due to fecal streaks below each nest hole in several rustic buildings at a summer camp in Hopkinton, Rhode Island. HAG MOTH (Phobetron pithecium)and SADDLEBACK CATERPILLAR (Sibine stimulea) were observed in unusual numbers during August in Rhode Island.

Maggots of an OTITID (Chrysomyza demandata) were found in silage in Hughes County, South Dakota, while in New Mexico, thousands of adults of a BLISTER BEETLE (Pyrota akhurstiana) were attracted to lights above a swimming pool at Radium Springs, Dona Ana County, on the nights of July 30 and 31.

A TENEBRIONID (Cynaeus angustus) was conspicuous in grain dust accumulations from ventilator covers of an elevator at Maumee, Ohio, in September, and another tenebrionid (Cnemeplatia sericea) was recorded in a house at Ritzville, Adams County, Washington.

A BOSTRICHID (*Heterobostrychus aequalis*) adult and larvae were found boring in a mahogany boat at Winter Haven, Polk County, Florida, on May 18. This is the second Florida Plant Board report of this species in Florida; a previous report was from Apalachicola in mahogany boards imported for use in boat building. The specimens found on May 18 were in a 16-foot mahogany boat which was built in Port Orange, Florida.

WHARF BORER (*Nacerdes melanura*) was found severely infesting greenhouse benches at Bowling Green, Ohio. This is an unusual record of occurrence.

An ANT (*Prionopelta* sp.) was collected in soil at Juniper Springs, Marion County, Florida, on August 28. This is the first species of the genus to be found in the United States, but it has not been identified specifically.

A COCKROACH (*Eurycotis lixa*) was collected at Key West, Monroe County, Florida, during August. This is the third record for the species from Key West and seems to be the only confirmed locality. It was described from a specimen taken at New York, New York, on a banana boat from Jamaica, although no subsequent specimens have been collected in Jamaica. Another COCKROACH (*Parcoblatta americana*) was recorded for the first time in Washington, being found in a home in Klickitat County.

A SCARAB (*Hoplia floridana*) was collected at Gainesville, Alachua County, Florida, on April 25. The types of this species were from Lake Wales, Florida, and no specimens have been reported since the original description.

In New Mexico, a MICROPEZID (*Micropeza* sp.) was collected at Deming, Luna County, and an EARWIG (*Vostox* sp.) was collected in a light trap at Virden, Hidalgo County. *Micropeza* sp. is possibly a new species and *Vostox* sp. is probably a new species.

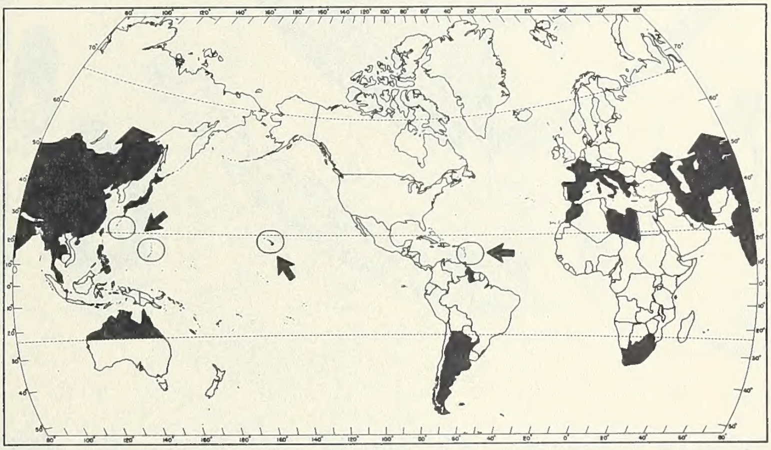
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES[1]

BLACK PARLATORIA SCALE (Parlatoria zizyphus (Lucas))

Economic Importance: This scale insect has been reported as one of the major pests of citrus in southern Europe and China. Heavy populations have also been reported from Thailand, India, Burma, Philippine Islands and Malaya. Although this species is not prolific, it is regarded as a serious pest because of its resistance to insecticides, being one of the most difficult of all scale insects to control. Parlatoria zizyphus was reported from Mississippi in 1937; however, it is believed that this record represented an interception and not an established infestation as no additional reports have been made. This species is frequently intercepted at U. S. ports of entry.

Distribution: Southern Europe, U.S.S.R. (Causcasus, Asiatic), Morocco, Union of South Africa, Iran, India, Burma, Thailand, Malaya, China, Japan, Formosa, Libya, Philippine Islands, Okinawa, Micronesia, northern Australia, Hawaii, British Guiana, West Indies and Argentina.

Hosts: Citrus. Also reported in a few cases from Ligustrum, Carissa, and Severinia buxifolia.



General Distribution of Parlatoria zizyphus

Life History and Habits: In spite of its name, this species does not occur on jujube. It occurs almost entirely on citrus. The insects become established on leaves and fruit and may form a black crust when abundant. In such cases, the leaves turn yellow and defoliation occurs. Very heavy infestations cause stunting of the fruit but in light attacks the growth of the fruit is not noticeably distorted. All stages of the insect can be found in some areas throughout the year. There are about 4 or 5 generations annually. Females lay from 10-20 oval violet eggs, which are arranged in the folds of a ventral covering in two parallel rows. The eggs do not hatch for a long period.

(Diaspididae, Hemiptera)

No. 109 of Series

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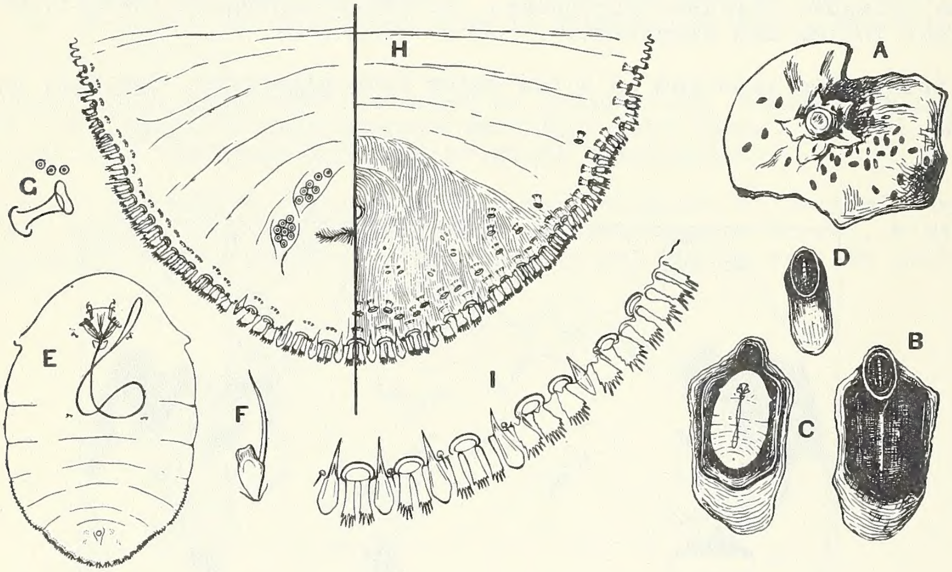
[1] Except the State of Hawaii

Description: Scale of female rectangular, flat, composed almost entirely of the opaque black, molted skin of the second stage and with a narrow white or brownish supplementary secretion, which at the posterior extremity is sometimes extended. The dorsum has two or three longitudinal ridges. Length about 1.6 mm. Scale of male elongate, whitish or brownish in color with larval exuvia black. Less than 1 mm. Key to this species according to Morrison is as follows:

"No duct tubercles on anterior portion of body, opposite anterior spiracles, or before these; eyespot large and conspicuous; submarginal dorsal tubular ducts very few, probably not exceeding 15 on each side of body; no dorsal intermediate macroducts; microducts, if present in this area, very few and inconspicuous. With duct tubercles on body margin between anterior and posterior spiracles, opposite posterior spiracles, and on first abdominal segment, but these small and inconspicuous; eyespot large but set at apex of a conspicuous globular to somewhat elongated projection of body margin; fully developed pygidial lobes distinctly notched laterally; fourth lobe represented by a stout and conspicuous sclerotized spur."



Figures of Parlatoria zizyphus: A - Scales with host. B - Female (dorsal view). C - Female (ventral view). D - Male (dorsal view). E - Female (ventral view). F - Antenna of female. G - Anterior parastigmatic glands of female. H - Pygidium of female. I - Margin of female.

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1. Morrison, H. 1939. U. S. Dept. Agr. Misc. Pub. 344:26-29.
2. Ebeling, W. 1959. Tropical Fruit Pests. 436 pp., Los Angeles. (pp. 234-235).

Figures (except map) from Kuwana, I. 1925. The Diaspine Coccidae of Japan, I. Dept. of Finance, Japan, Tech. Bul. 1, 18 pp.

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